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A New Species of *Hemikalliapseudes* (Crustacea: Peracarida: Tanaidacea) from the Continental Slope off Angola

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A new species of tanaidacean of the genus *Hemikalliapseudes* (Kalliapseudidae) is described from fine mud sediment from some 230 m depth on the continental slope off Angola. While closest to the type species of the genus, *H. hanstroemi* Lang, 1956, it is distinguished from the two known species of the genus in having a slender, seta-bearing tubercle on the basis of the cheliped, no large tooth on the cutting edge of the chela dactylus, no ventral spiniform apophyses on the pereonites, and in having the carpus of the mature male cheliped longer than wide. The new species is from deeper waters and from a finer substratum than are the other two species.

Key Words: Tanaidacea, Kalliapseudidae, Angola, deep-sea, *Hemikalliapseudes*.

Introduction

The tanaidacean fauna of the deeper waters off West Africa is not well known. Lang (1955) recorded two species of *Apseudes* from Atlantide Expedition material broadly in this area, and there has been some Galathea Expedition material described from the region over the years, including *Hemikalliapseudes hanstroemi* Lang, 1956 (q.v.) off the Congo River, although at only 40 m depth. Recent deep-water studies in the north-east Atlantic (e.g., Bird and Holdich 1984, 1988, 1989a, b) have concentrated on waters further north.

More recently, Bamber (2000) described the tanaidacean fauna from an oil-field exploration survey in waters at 1300 m depth off Angola, reporting one apseudomorph and four tanaidomorph species, including the newly described *Collettea pegmata* Bamber, 2000, as well as some undetermined leptognathiid species.

Subsequent to that study, further material has become available from benthic surveys off Angola, including a new species of the kalliapseudid genus *Hemikalliapseudes* from slope depths of 230 m. This species is described herein. Type material has been lodged at The Natural History Museum, London (NHM).

Terminology of the cuticular ornamentation herein follows the traditional use of “spines” for relatively inflexible, thorn-like structures, “setae” for flexible, bristle- or hair-like structures, and “apophyses” for non-articulating cuticular outgrowths (i.e. “spines” *sensu* Watling 1989), in keeping with their etymology.

Systematics

Genus *Hemikalliapseudes* Lang, 1956*Hemikalliapseudes makellus* sp. nov.

(Figs 1–6)

Material. One male, holotype (registration no. NHM 2002.886); 13 females (5 brooding), 6 males, 1 manca, paratypes (NHM 2002.888–897); 231 to 236 m depth, ca 06°10'S, 11°29'E; fine mud, 73% to 81% silt-clay.

Description. Small hemikalliapseudid (length of holotype from rostrum to tip of telson 4.12 mm); body (Fig. 1A) dorsoventrally flattened, slender, tapering, about 7 times as long as wide. Cephalon about as long as wide, naked, with conspicuous squared rostrum with anterior concavity in holotype, paratypes of both genders either with or without concavity (Fig. 1B); anteriorly pointed eyelobes present, without eyes. Pereonite 1 widest, simple, contiguous with cephalon, 0.5 times as long as wide. Pereonites 2 to 6 respectively 0.7, 0.85, 1.0, 1.0, and 0.82 times as long as wide, each with right and left anterolateral and posterolateral seta; pereonites 2 and 3 with midlateral invagination. No ventral spiniform apophyses.

Five free pleonites lacking dorsal setae but laterally setose and with posterolateral thorn-like apophysis (Fig. 1C). Telson (Fig. 1C) 1.4 times as long as wide, with 3 pairs of lateral setae and 2 pairs of dorsodistal setae, projecting at insertion of anterior lateral setae, stepped at insertions of uropods, distally bifurcate.

Antenna 1 of male (Fig. 2B) with main flagellum of 8 articles, single aesthetascs distally on articles 2 and 6, 2 aesthetascs on article 4. Antenna 1 of female (Fig. 2A) setose as figured, with peduncle of 4 articles, biarticulate accessory flagellum, and main flagellum of 6 articles, 4th article of flagellum bearing single aesthetasc and distal 2 articles offset. Antenna 2 (Fig. 2C) with basal article simple, squama bearing 4 setae, flagellum (*sensu* Gutu 1996) of 4 articles; no conspicuous sexual dimorphism.

Labrum (Fig. 3A) simple, squared, setose. Mandibles (Fig. 3B, C) with 3 articles in palp, basal article with 2 plumose setae, 2nd article with distal row of 6 peg-like spines, distal article with 3 distal plumose setae. Mandibles also with narrow, dentate pars mandibularis, 5 simple or bifurcate spines on spiniferous lobe, and robust pars molaris; only left mandible with lacinia mobilis. Labium (Fig. 3D) finely setose, its terminal lobe (palp) marginally setose with 2 distal setae.

Maxilla 1 (Fig. 3E) with inner endite bearing 4 distal plumose setae, outer margin finely setose distally and with large apophysis; outer endite with 9 distal spines and finely setose outer margin; palp absent. Maxilla 2 (Fig. 3F) with rostral row of about 15 setae on inner margin and 2 caudal setae; fixed endite with forked setae; inner and outer lobes of movable endite with falcate setae, those on inner lobe serrate; outer margin of maxilla 2 denticulate.

Maxilliped (Fig. 3G) with palp of 4 articles, 1st article with paired inner setae, 2nd and 3rd articles sparsely setose on inner margins as figured, distal article with 4 long inner and 1 shorter distal setae. Endite (Fig. 3H) with 6 plumose setae along inner side, 3 couplers, 3 curved, simple setae distally, and sparse, simple, stout spines along inner edge. Epignath (Fig. 3I) large, its terminal spine naked.

Cheliped of female (Fig. 4A) without exopodite; basis elongate with slender, elongate (as long as width of basis), mid-ventral tubercle bearing long seta; merus with 3 mid-ventral setae and distoventral "shoulder" bearing 4 setae; carpus sim-

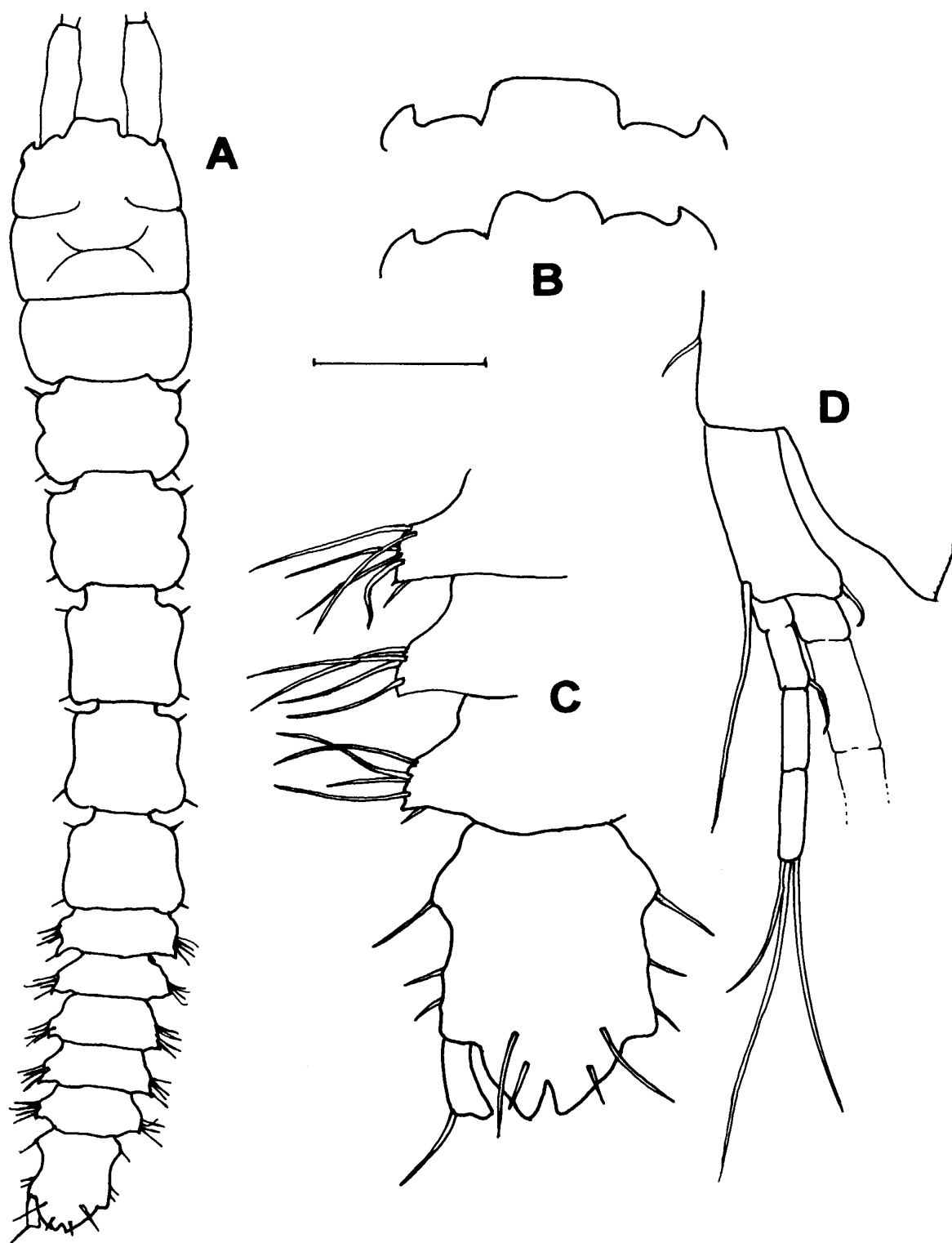


Fig. 1. *Hemikalliapseudes makellus* sp. nov. A, holotype male, habitus; B, rostra of paratype (upper) and holotype (lower); C, telson and left margin of pleonites 3 to 5, dorsal; D, left uropod basis and exopodite, dorsal. Scale bar=0.6 mm for A, 0.2 mm for C, 0.1 mm for D.

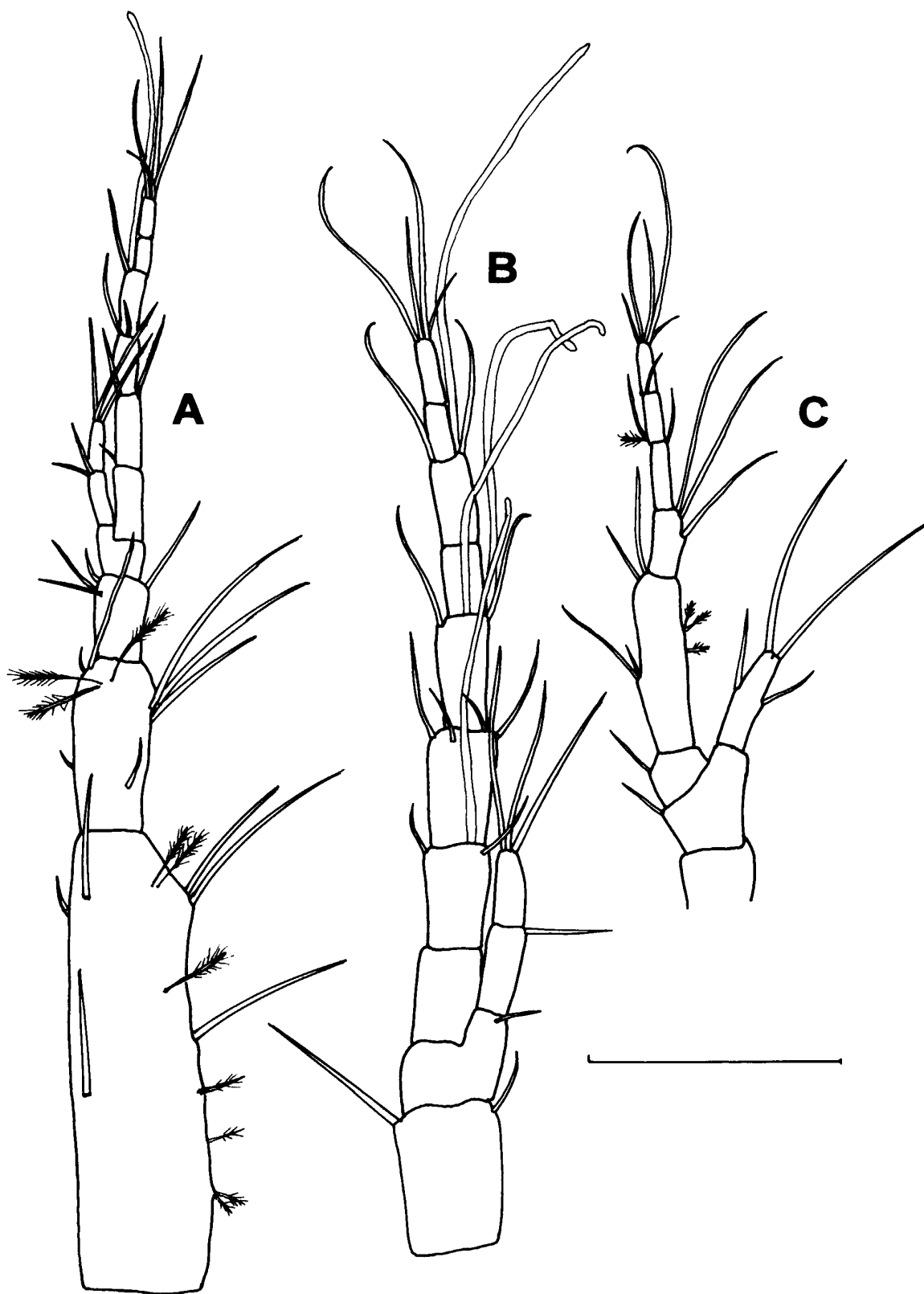


Fig. 2. *Hemikalliapseudes makellus* sp. nov. A, right 1st antenna of female, dorsal; B, distal articles of left 1st antenna of male, dorsal; C, right 2nd antenna of female, dorsal. Scale bar=0.2 mm.

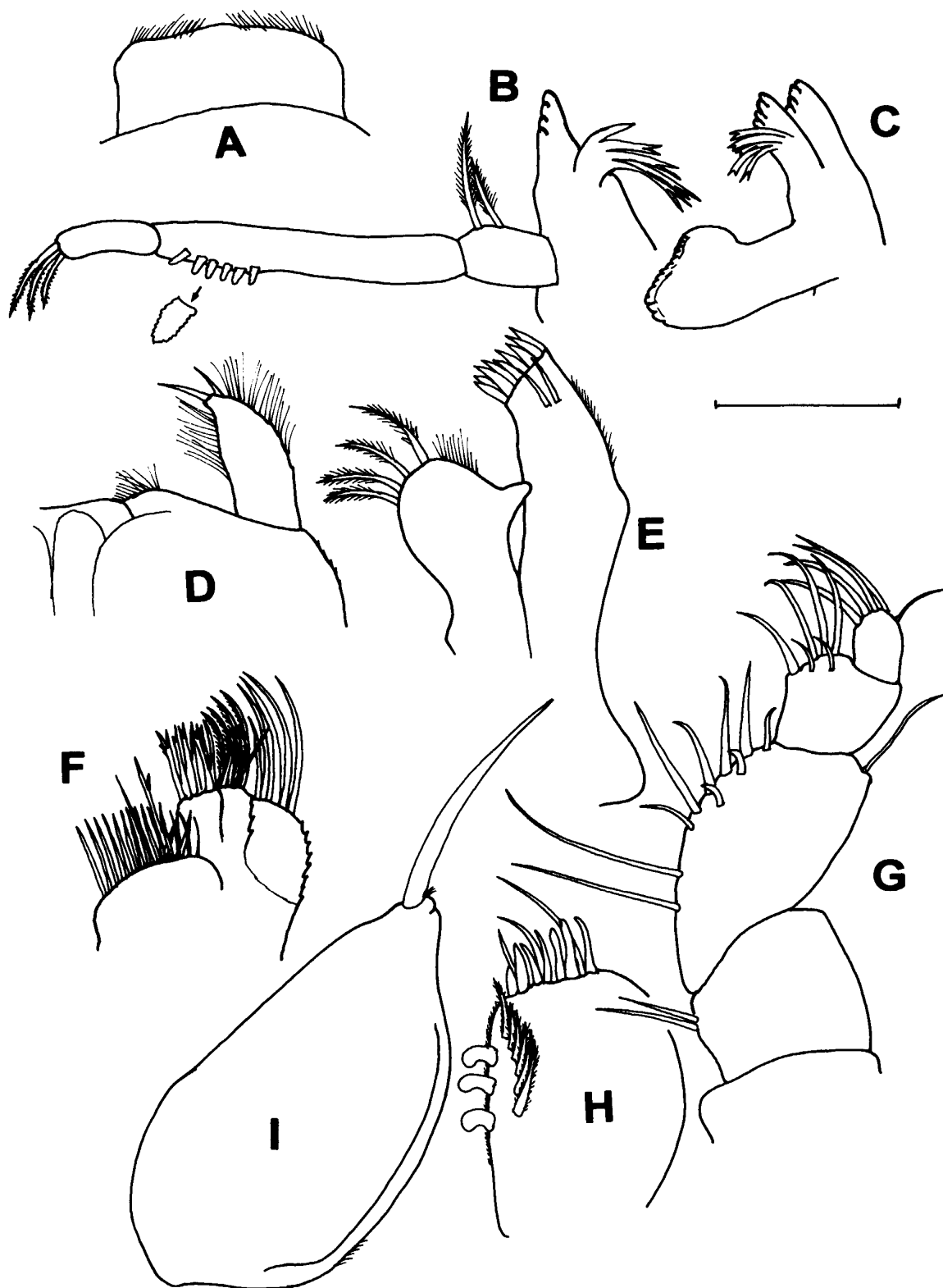


Fig. 3. *Hemikalliapseudes makellus* sp. nov., male paratype. Dorsal views of whole or right mouthparts (other than A and C). A, labrum; B, right mandible (pars molaris not shown) with detail of peg-like spine; C, left mandible (palp not shown); D, labium (right half); E, 1st maxilla; F, 2nd maxilla; G, maxilliped palp; H, maxilliped endite; I, epignath. Scale bar=0.1 mm.

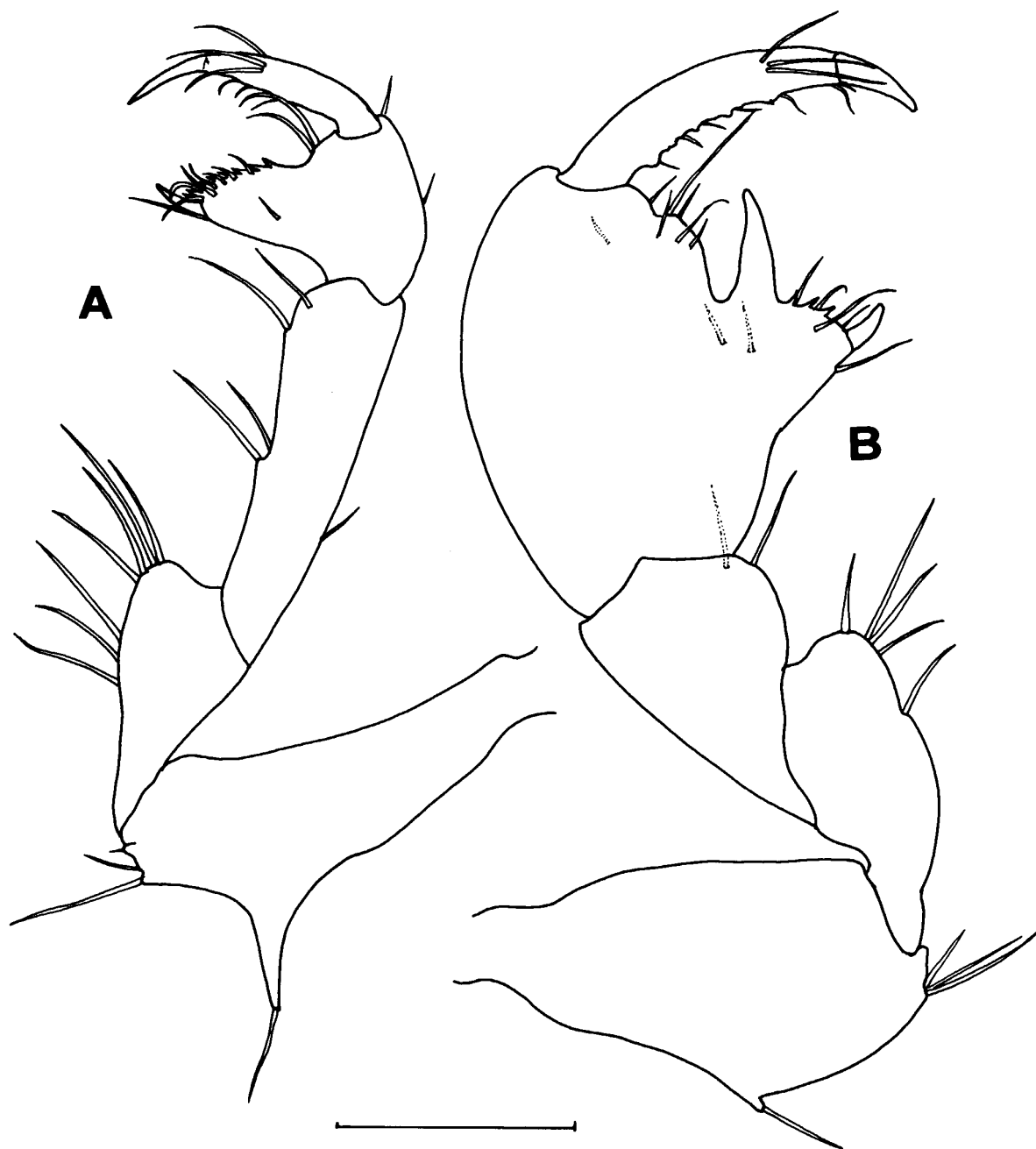


Fig. 4. *Hemikalliapseudes makellus* sp. nov., chelipeds in rostral view. A, female (right); B, male (left). Scale bar=0.2 mm.

ple, elongate, 3.5 times as long as wide; propodus compact, fixed finger of chela with 8 denticles along cutting edge, distal spine slender with slender adjacent subdistal seta; dactylus almost subdistal, with setae on cutting edge, claw slender.

Cheliped of male (Fig. 4B) with basis swollen, ventral tubercle short; merus more robust than that of female; carpus compact, about 1.5 times as long as wide, anaxial on merus; propodus robust, only slightly longer than wide, fixed finger of chela with large, triangular apophysis ("tooth") and 3 denticles on cutting edge,

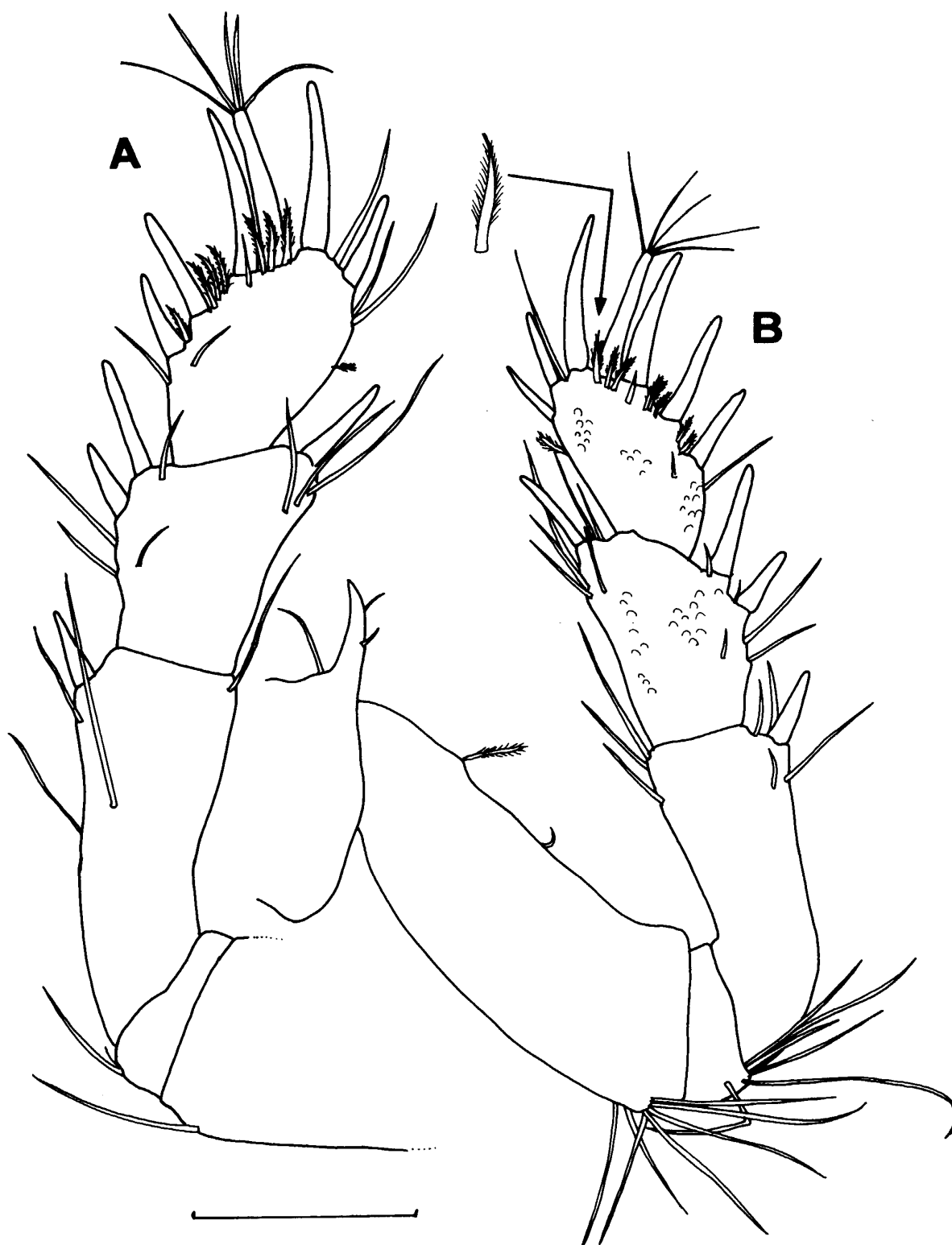


Fig. 5. *Hemikalliapseudes makellus* sp. nov., 1st pereopods in rostral view. A, female (right); B, male (left). Scale bar=0.2 mm.

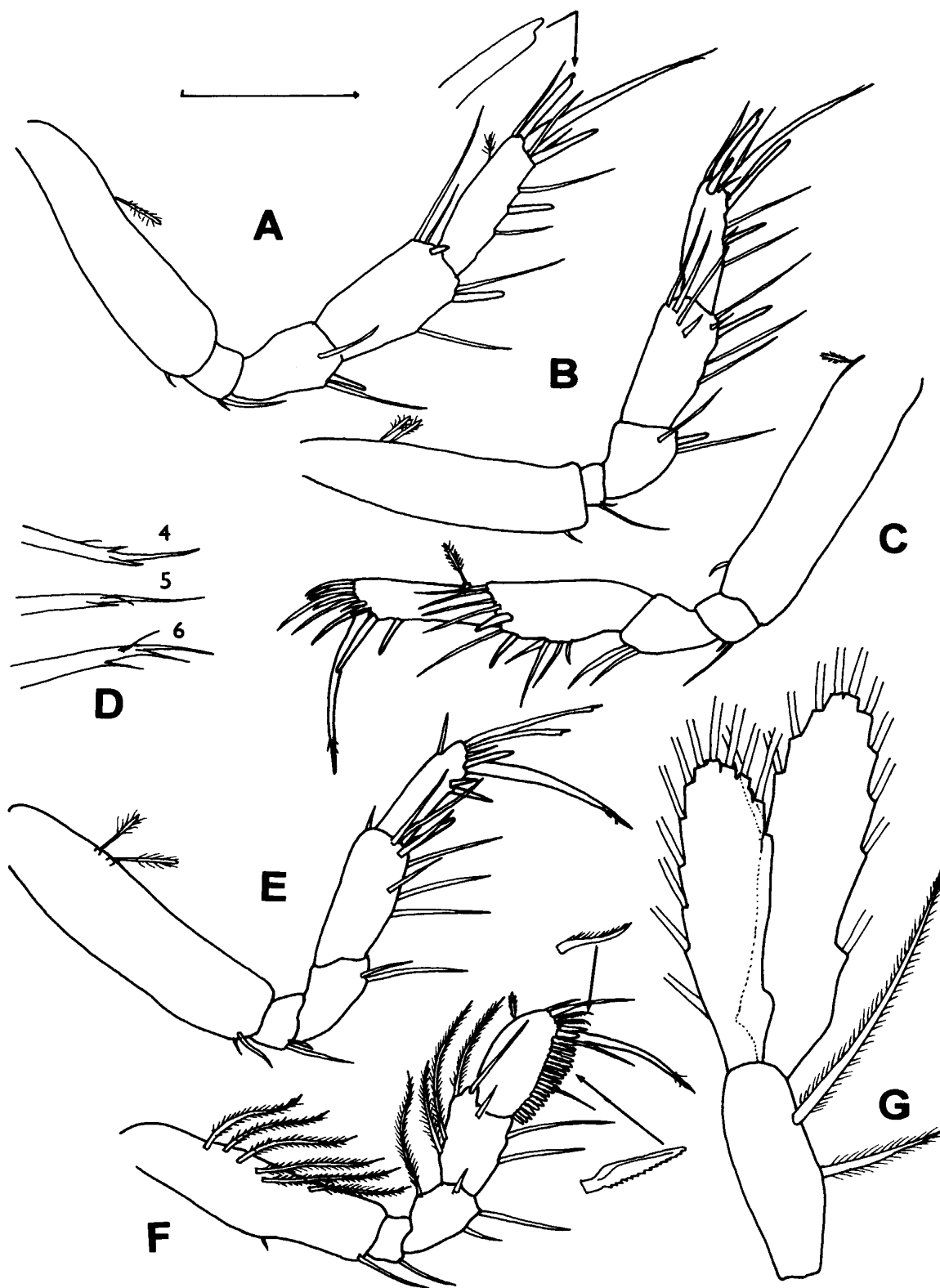


Fig. 6. *Hemikalliapseudes makellus* sp. nov., A to F, male holotype, G, male paratype. A–C, E, and F, right pereopods 2, 3, 4, 5, and 6, respectively (rostral views except C); D, details of dactyli of pereopods 4, 5, and 6; G, 2nd right pleopod. Scale bar=0.2 mm for A–C, E, and F, 0.1 mm for G.

distal spine blunt with single adjacent subdistal seta; dactylus with crenulate cutting edge.

Pereopod 1 of female (Fig. 5A) without exopodite, sparsely setose and with blunt spines as figured; propodus with groups of 1 to 3 short, plumose setae between marginal spines; dactylus blunt, without claw, with distal brush of 5 setae. Pereopod 1 of male (Fig. 5B) similar but with more setae, particularly distally on basis and ischium. Large, spine-like coxal apophysis and incipient "scalloped" sculpturing (as shown for male) present in both sexes. Pereopod 2 (Fig. 6A) with basis slender; merus and carpus with subdistal blunt spine, carpus longer than merus; propodus with mid-ventral and paired distal blunt spines, dorsodistal spine with "stepped" tip; dactylus slender, longer than propodus, claw with adjacent seta giving bifurcate appearance. Pereopod 3 (Fig. 6B) similar to pereopod 2. Pereopod 4 (Fig. 6C) as pereopod 2 but without distal spine on merus; propodus with distal "crown" of spines, and tip of dactylus forked around claw, making articulation indistinct (Fig. 6D). Pereopod 5 (Fig. 6E) as pereopod 4 but with only 2 short and 2 long distal spines on propodus, long spines distally "stepped"; dactylus as in pereopod 4 (Fig. 6D). Pereopod 6 (Fig. 6F) with slender basis, 6 long, plumose dorsal setae; 1 and 3 plumose dorsal setae, respectively, on merus and carpus; compact, rounded propodus with ventral row of about 20 compound leaf-like spines and 3 short, plumose distal setae; dactylus as in pereopod 4 (Fig. 6D).

Pleopod (Fig. 6G) biramous, rami uniarticulate with plumose setae; basis elongate, with 2 dorsal plumose setae. Uropod (Fig. 1D) with basis somewhat flared distally, with long outer and short inner distal setae; exopod of 3 articles (with incipient articulation of proximal article), with 3 distal setae; endopod elongate, 3 times as long as telson, articulation indistinct, bearing 8 terminal setae.

Etymology. From the Greek *makella* (noun, feminine), a pick with a single point, referring to the basis of the cheliped with its setose, pointed tubercle, long in the female.

Remarks. Two species of *Hemikalliapseudes* have been described previously; *H. hanstroemi* was described from the single male holotype collected from coarse sand at 40 m depth off the Belgian Congo, whereas *H. cavooreni* Băcescu and Absalao, 1985 was described from three males and one female from "silty sand" at 25 m depth off Brazil (Lang 1956; Băcescu and Absalao 1985).

There has been some confusion in the past over the genus (see discussion in Gutu 1998) owing to the differences in the armature of the dactylus of the first pereopod of these two species, that of *H. cavooreni* having a small claw while the type species of the genus lacks a claw. Furthermore, this leg has an exopodite in *H. hanstroemi* but not in *H. cavooreni* (the cheliped has no exopodite in either of these species).

The present species has a first pereopod with an identical dactylus conformation to that of the type species, with no claw but a brush of sensory setae; however, it has no exopodite on either the first pereopod or the cheliped. Equally, *H. makellus* sp. nov. has no ventral "spiniform apophyses" on the pereonites, a feature emphasized by Gutu (1998) in his discussion of the subfamily.

In most respects, *Hemikalliapseudes makellus* sp. nov. is morphologically similar to *H. hanstroemi*, but differs conspicuously in having a slender, seta-bearing tubercle on the basis of the cheliped, no large tooth on the cutting edge of the chela dactylus, no ventral spiniform apophyses on the pereonites, a proportionately

longer telson, fewer articles in the flagellum of the antenna, only four setae on the antennal squama, and no long setae on article 2 of the mandibular palp. It is also the only species of the genus to have the carpus of the mature male cheliped longer than wide. The new species is from deeper waters and from a finer substratum than the other two species.

Sexual dimorphism in *Hemikalliapseudes makellus* sp. nov. is conspicuous in the cheliped and the first antenna; non-sexual intraspecific variation is shown in the presence or absence of an anterior concavity of the rostrum.

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